

REMARKS

A. Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remain of the position that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to an ink-jet recording sheet that exhibits excellent ink absorbability, superior anti-gas discoloration effects and prevents film layer delamination.

In one of the novel aspects of the invention, the ink-receiving layer of the ink-jet recording sheet comprises a polymer containing 1, 2-polybutadiene in an amount of not less than 60 weight% of the total weight of the polymer.

C. Claims Status and Amendments

Claims 1-3 and 5-13 are pending in the Application, claim 4 having been canceled by this amendment.

Claim 1 has been amended to include the limitations of claim 4. Claim 1 now recites that the polymer in the ink receiving layer contains 1, 2-polybutadiene in an amount of not less than 60 weight% based on the total weight of the polymer.

This amendment also necessitates the amendment to claim 3 to delete polyisoprene, since the polymer must now contain the 1, 2-polybutadiene type monomer.

D. The Office Action

Claims 1-13 had been rejected as being anticipated by Uto (US 6,616,991). Claims 1-13 had also been provisionally rejected for obviousness-type double patenting as being unpatentable over claims 1-7 of US Serial No. 10/655,104.

The Examiner had pointed to col. 3, lines 33-63 of Uto to teach an ink receiving layer having polyisoprene or polyisobutylene polymer. The Examiner had also noted that Uto teaches that the polymer preferably has no unsaturated double bonds.

1. The significance of the 1, 2-polybutadiene weight% of amended claim 1

Claim 1 has been amended to recite that the polymer contains 1, 2-polybutadiene in an amount of not less than 60 weight% based on the total weight of the polymer.

The Inventors explain that a glossy recording sheet is obtained when the ink receiving layer contains a compound having a plurality of non-aromatic carbon-carbon unsaturated bonds, since the unsaturated bonds react effectively with oxidizing gases to prevent discoloration of the dyes (page 10, lines 1-8). The compound having 1, 2-polybutadiene is a preferred compound, since 1, 2-polybutadiene contains unsaturated bonds in the side chain which easily react with oxidizing gases (page 10, lines 9-13).

The superior effects of the ink receiving layer of amended claim 1 are demonstrated in Table 3 at pages 110-111 of the Application. In Table 3, Recording Sheets 17A-22A contain 1, 2-polybutadiene in an amount of about 20 weight% (ca. 20%), below the 60 weight% limitation of amended claim 1. Recording sheets 17A-22A exhibited residual ratios of 92-94% for cyan gas discoloration and residual ratios of 90-94% for gas

discoloration after irradiation (see page 108, lines 1-12 for the test conditions).

In contrast to Recording sheets 17A-22A, Recording sheet 55A contains 1, 2-polybutadiene in an amount of about 85 weight%, within the range of amended claim 1. Table 3 shows that Recording sheet 55A is superior to Recording sheets 17A-55A. Specifically, Recording sheet 55A exhibited a residual ratio of 99% for cyan gas discoloration and a residual ratio of 99% for gas discoloration after irradiation. The evaluation results for Recording sheet are therefore superior to Recording sheets 17A-22A.

Thus, Table 3 of the Application demonstrates the significance of an ink receiving layer having a polymer containing 1, 2-polybutadiene in an amount of not less than 60 weight% as recited in amended claim 1.

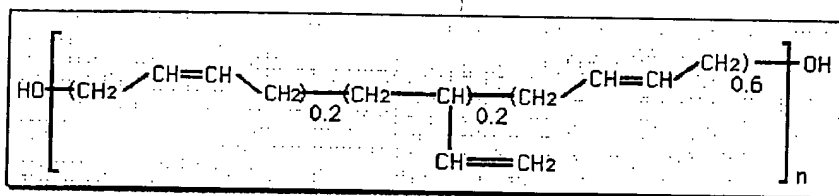
Although the test data provided in this Application is not in Declaration format, it is believed that the test data is evidence that should be afforded weight by the Examiner in evaluating the patentability of the claimed invention.

2. Uto does not teach or suggest an ink receiving layer having 1, 2-polybutadiene in an amount of not less than 60 weight%

Col. 3. lines 44-51 of Uto explain that the polymer can be polyisoprene or polyisobutylene as stated by the Examiner. However, this portion of Uto does not teach the limitations of amended claim 1, namely, that the ink receiving layer has a polymer that contains 1, 2-polybutadiene in an amount of not less than 60 weight%.

In addition, Example 1 at col. 8 of Uto prepares a coating solution containing Poly-bd R45HT manufactured by Idemitsu Petrochemical Co., Ltd. The molecular structure of Poly-bd R45HT is shown below.

The structure of Poly-bd R-45HT



As shown by the above structure, Poly-bd R45HT contains 1, 2-polybutadiene in an amount of 20 weight% and 1, 4-polybutadiene in an amount of 80 weight% (the 80 weight% for 1, 4-polybutadiene is calculated by adding 0.2 and 0.6 for the identical left and right chains of the molecule, the 20 weight% for 1, 2-polybutadiene is the 0.2 center portion of the molecule). Thus, the polymer of Example 1 of Uto falls outside

the scope of amended claim 1, since 1, 2-polybutadiene is present in 20 weight%, below the 60% limitation of amended claim 1.

Applicants therefore respectfully submit that Uto does not anticipate amended claim 1, since Uto does not teach or suggest a polymer containing 1, 2-polybutadiene in an amount of not less than 60 weight% as recited in amended claim 1.

3. It would not be obvious to employ a polymer containing 1, 2-polybutadiene in an amount of not less than 60 weight% based on the teachings of Uto

In section 2 above, Applicants believe to have demonstrated that Uto does not anticipate amended claim 1. In addition to this argument, Applicants submit that the present invention is not obvious based on the teachings of Uto for the following reasons.

Uto explains that the polymer preferably has no unsaturated double bonds in the molecule (col. 3, lines 61-63). Uto is therefore teaching away from the present invention, since claim 1 recites that the polymer has a plurality of unsaturated bonds. As discussed in section 1 above, Table 3 of the Application demonstrates the significance of the polymer of the present

invention having a plurality of unsaturated double bonds. More specifically, Applicants have demonstrated the surprising and unexpected results obtained when the polymer contains 1, 2-polybutadiene in an amount of 60 weight% or more. Applicants respectfully submit that the present invention is not obvious over the teachings of Uto, since Uto leads one of skill in the art away from the claimed polymer having a plurality of unsaturated double bonds, and Uto does not suggest the significance of the large percentage of 1, 2-polybutadiene in the polymer as demonstrated in Table 3 of the Application.

It is respectfully submitted that the present invention is not obvious based on the teachings of Uto.

E. The Double Patenting Rejection

A terminal disclaimer shall be filed to overcome the double patenting rejection shortly.

F. Conclusion

In view of the foregoing and the enclosed, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested. PTO Form 2038 is enclosed herewith authorizing payment of the appropriate Terminal Disclaimer Fee. Should any further fees or extensions

of time be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

MUSERLIAN, LUCAS & MERCANTI, LLP

By: Donald C Lucas
Donald C. Lucas, 31,275
Attorney for Applicant(s)
475 Park Avenue South, 15th Floor
New York, New York
Tel. # 212-661-8000

DCL/mr

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